New Combinations in *Carex* Section *Acrocystis* (Cyperaceae)

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ABSTRACT. *Carex communis* and *C. amplisquama* can be distinguished based on achene micromorphology. However, similarity in macromorphology and flavonoid chemistry suggest they are best treated as two varieties of *Carex communis*. *Carex rugosperma* and *C. tonsa* are morphologically closely related and are best treated as two varieties of a single species. For reasons of nomenclatural priority, the new combination *C. tonsa* var. *rugosperma* is required. *Carex tonsa* also is lectotypified.

Carex communis L. Bailey is a wide-ranging taxon of eastern North America, whereas *C. amplisquama* F. J. Hermann is restricted to northern Georgia and extreme western South Carolina. The most striking feature of *C. amplisquama* is the large pistillate scales. The two taxa are very difficult to distinguish, and some specimens assignable to *C. communis* based on other macromorphological characters have pistillate scales that approach the length of those in *C. amplisquama*.

Principal component (PC) and cluster analyses of macromorphological characters revealed overlap between the two taxa; however, study of a discriminant function analysis resulted in complete separation (Rettig, 1988). Pistillate scales of *Carex amplisquama* are significantly longer than those of *C. communis* ($p < 0.001$), although there is some overlap (Rettig, 1988). *Carex amplisquama* alsò is always densely caespitose with culms erect and arching over at the tip, whereas *C. communis* is usually loosely caespitose with prostrate culms. This field character ("lost" in pressing) is especially useful in separating taxa when combined with pistillate scale length.

Ranges of 10 achene micromorphological characters examined in the multivariate study overlapped; therefore no characters could be considered diagnostic, although five characters were significantly different (Rettig, 1988). PC and cluster analyses show complete separation of the two taxa without any overlap: all individuals of *Carex amplisquama* clustered together before clustering with individuals of *C. communis*.

Some plants of *Carex communis* produce Luteolin 7-Methyl ether 4′-diglucoside, a Luteolin 5-substituted glycoside and a 5-substituted flavone glycoside not found in *C. amplisquama* (Rettig, 1988). Multivariate analyses did not separate the two varieties into groups that correspond to morphological delimitations; however, *C. amplisquama* specimens were grouped together.

Achene micromorphology provides the strongest evidence for two distinct taxa. However, similarity in macromorphology and overall flavonoid chemistry suggest that they are best treated as two varieties.

Carex communis L. Bailey var. **amplisquama** (F. J. Hermann) J. Rettig, comb. nov. Basionym: *Carex amplisquama* F. J. Hermann, Rhodora 57: 158. 1955. TYPE: U.S.A. Georgia: Gilmer Co., *J. H. Pyron & Rogers McVaugh 2951* (holotype, US; isotypes, GA, MICH not seen).

KEY TO THE VARIETIES OF *CAREX COMMUNIS*

1a. Pistillate scale shorter than perigynium or extending beyond the perigynium no more than 0.8 mm; plants usually loosely caespitose with lax culms . . . . . *C. communis* var. *communis*

1b. Pistillate scale extending beyond the perigynium more than 0.8 mm; plants usually densely caespitose with culms erect to arching . . . . . *C. communis* var. *amplisquama*

North American caricologists acknowledge *Carex rugosperma* Mackenzie and *C. tonsa* (Fernald) Bicknell to be very close relatives. The taxa differ qualitatively in leaf texture, color, and indument, and in the degree of pubescence of the perigynia, with *C. tonsa* having coriaceous, light green, smooth leaves and perigynia that are virtually glabrous. Fernald (1902) was the first to combine these taxa at varietal rank, although at the time the typification of *C. umbellata* Schkuhr ex Willdenow had not yet been resolved (*C. umbellata* is now known to be a related but distinct species with short perig-

ynium beaks). Voss (1966) also recognized the close relationship between *C. rugosperma* and *C. tonsa* and treated the latter as a variety of *C. rugosperma*.

We concur with the view that these taxa are closest relatives. However, the epithet "*tonsa*" predates "*rugosperma*" at the rank of species, and therefore a combination of *C. rugosperma* within *C. tonsa* is required.

Carex tonsa (Fernald) Bicknell, Bull. Torrey Bot. Club 35: 492. 1908. Basionym: *Carex umbellata* Schkuhr ex Willdenow var. *tonsa* Fernald, Proc. Amer. Acad. 37: 507. 1902. TYPE: U.S.A. Connecticut: *C. B. Graves s.n.* (lectotype, selected here, GH; isolectotype, GH).

Carex tonsa (Fernald) Bicknell var. **rugosperma** (Mackenzie) Crins, comb. nov. Basionym: *Carex rugosperma* Mackenzie, Bull. Torrey Bot. Club 42: 621. 1915. TYPE: U.S.A. New Jersey: Tuckerton, May 1911, *K. K. Mackenzie 9871* (holotype, NY).

The epithet *Carex tonsa* requires lectotypification. One of three sheets collected by C. B. Graves in Connecticut is here designated as the lectotype. It is one of the syntypes cited by Fernald (1902) and contains ample material with characteristic thick, relatively smooth foliage, and typical long-beaked, nearly glabrous, mature perigynia. The plant at the bottom left corner of the sheet is selected as the type.

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Voss, E. G. 1966. Nomenclatural notes on monocots. Rhodora 68: 435–463.